

A photograph of the Golden Gate Bridge in San Francisco, viewed from a low angle on the left side of the frame. The bridge's red-orange towers and suspension cables are prominent against a clear blue sky. The water of the bay is visible in the foreground and middle ground, with a small boat visible in the distance. The city skyline is faintly visible in the background.

# **San Francisco's Recycling & Composting Programs and Zero Waste Policies**

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**Commercial Recycling Coordinator**  
**Department of the Environment**  
**City and County of San Francisco**

**Puerto Rico 2008 Recycling Conference**  
**San Juan, Puerto Rico**  
**March 26, 2008**

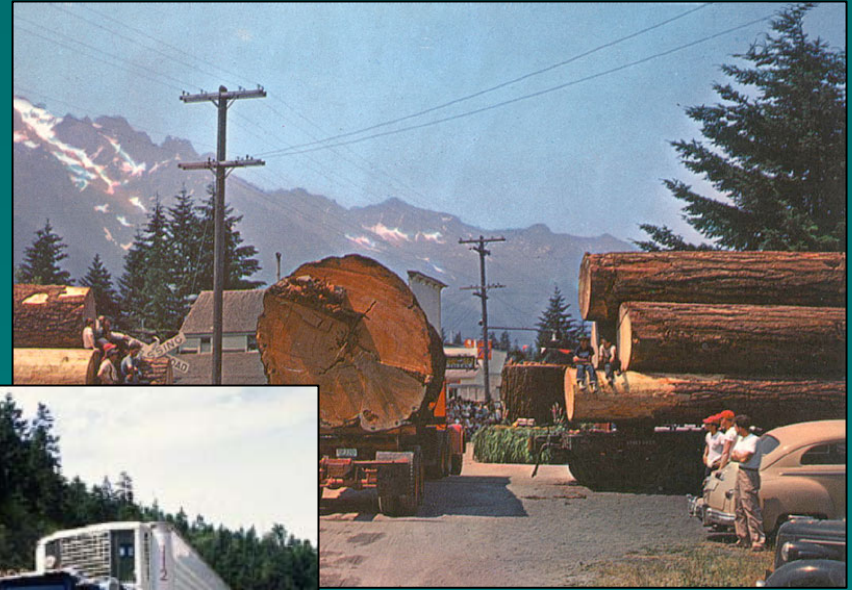
# San Francisco Key Stats

- 775,000 residents & 1.25 million daytime in 49 sq. mi.
- Nearly 50% don't speak English at home
- 60,000 businesses & institutions generate 2/3 of waste
- Private collection (through permit system) and processing with Norcal Waste Systems Co.'s, for trash & compostables, and most of the recyclables
- Variable rates charged for garbage collection via City rate approval process
- 1.98 million TPY total waste generation, including construction & demolition debris and biosolids
- Regional landfill 84 km from City transfer station
- Waste diversion is 70%, reported to the state for 2006, landfill disposal of <600,000 tons lowest in >20 years.

# San Francisco's Adopted Diversion & Zero Waste Policy Goals

- **50% Diversion by 2000 State Mandate with penalties**  
*(CA increased diversion from 10% in 1990 to > 50% in 2005)*
- **75% Landfill Diversion by 2010 Goal**
- **“Zero Waste” to landfill or incineration by 2020 Goal**
- **Promote Highest and Best Use of Materials**
- **Require Consumer & Producer Responsibility (EPR)**
- **Meet UN SF Urban Environmental Accords**

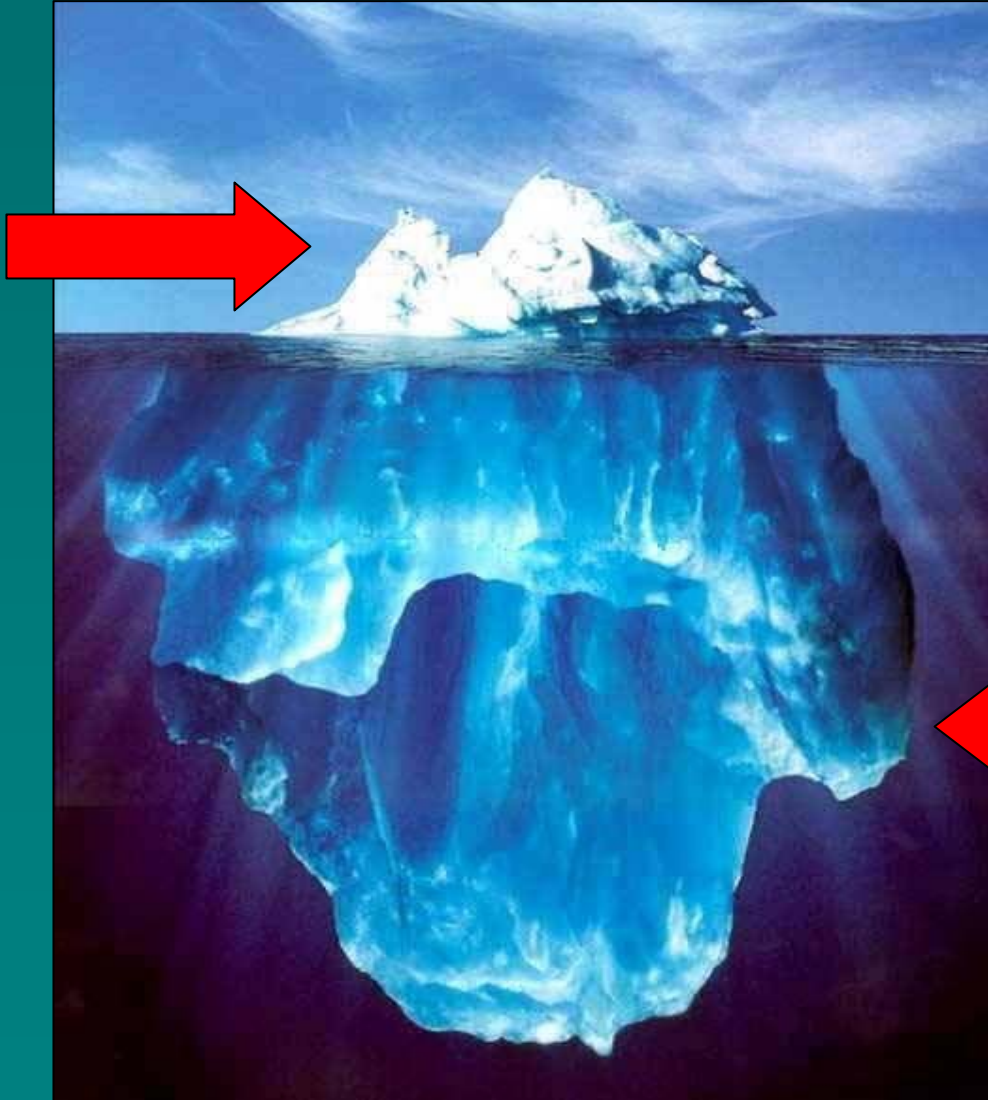
# Upstream Waste





# Tip of the Wasteberg Impact

**Municipal  
Waste  
tip of the  
“wasteberg”**



**Upstream waste  
produced is 70  
times greater  
than at  
municipal level**

# ***Climate Change and Waste Diversion***

A background image of the Earth as seen from space, showing the blue oceans and green landmasses. The image is slightly blurred and serves as a backdrop for the text.

**Climate change gas emission increases are directly to the increase in solid waste**

*Waste reduction, reuse, recycling and composting decrease climate changing gases by:*

- *Increasing storage of carbon in soil & biomass*
- *Reducing emissions from energy consumption*
- *Reducing methane emissions from landfills*

# Hierarchy of Food Diversion

- **Edible Food Donation**

- Delivered to meal programs via Food Banks

- **Animal Feed**

- Picked-up by farmers or via processor for feed production

- **Rendering**

- Grease & meat products processed into tallow & animal feed

- **On-site Composting**

- By residents, schools, colleges and universities for on-site soils

- **Large Scale Composting**

- Curbside collection to large scale processing into compost

- **Digestion into Gas or Converting to BioDiesel**

- Collection and centralized digestion into biogas energy
- FOG (fats, oil & grease) processed into Biodiesel

# San Francisco Food Bank

## Edible Food Redistribution





# Produce, Brewery & Tofu Residuals For Dairy Feed



# FOG (Fat, Oil & Grease), Meat & Bones Rendered Into Animal Meal & Tallow



# Home Composting Education & Bins



# Composting & Recycling Collection Designed For Easy High Diversion



Glass and Plastic Bottles  
Aluminum and Steel Cans  
4%

Recycled Paper  
21%



Food Scraps  
20%



Plant Trimmings  
5%

Compostable Paper  
& Fiber 10%

Construction and  
Demolition Waste  
25%



Other  
15%

All % numbers by  
weight or tons





# **“Fantastic 3” Collection Program for Residents and Businesses**





# Easy to Understand Photo Image Outreach

## 1 Recycle

Place all bottles, cans, foil, paper and cardboard in the blue cart. **MAKING RECYCLING EASIER!**



### not accepted

in the blue cart:  
plastic bags  
Styrofoam  
mirrors, window glass or light bulbs  
ceramic dishes or cups  
plastics other than bottles  
juice boxes

## 2 Compost

Place all of your food scraps, food-soiled paper and yard trimmings in the green cart.



Use your kitchen pail to hold food scraps.

✓ You can line kitchen pail with paper bag or newspaper.



✓ Fill with food scraps — even meat and bones.

✓ Paper bag and contents go in the green cart.



### not accepted

in the green cart:  
plastic bags  
Styrofoam  
plastic flower pots or trays  
diapers  
kitty litter or animal feces  
rocks, stones or dirt

## Your New Program Reduces Garbage!

As you can see, more things are recyclable than ever before. With your help we will:

- Protect our environment! Recycling more means less garbage being sent to the landfill
- Reduce litter through the use of fidded carts
- Make San Francisco the first large U.S. city to collect food scraps for composting city-wide

## 3 Garbage

Place what is left over — non-recyclables — into the black cart.

No hazardous materials. For household hazardous waste information, call 415-554-4333.



Paper milk cartons can also be used to hold food scraps and are compostable!

## Questions?

Call 415-330-1300 or visit  
[www.sunsetscavenger.com](http://www.sunsetscavenger.com)

# Recyclables & Trash Collected Using Dual Compactors Weekly For Residents





# Fully Commingled Recycling Collection in Offices With Desk-side Dual Bins



# Material Recovery Facility (MRF) Sorts Mixed Recyclables For Shipping to Markets





# Tipping Single Stream Material





# 3 Single Stream & 2 Mixed Commercial Lines for over 1200 tpd





# Initial Hand Sorting of Larger Material





# Angled Rotating Bar Screens Separate Fiber and Containers



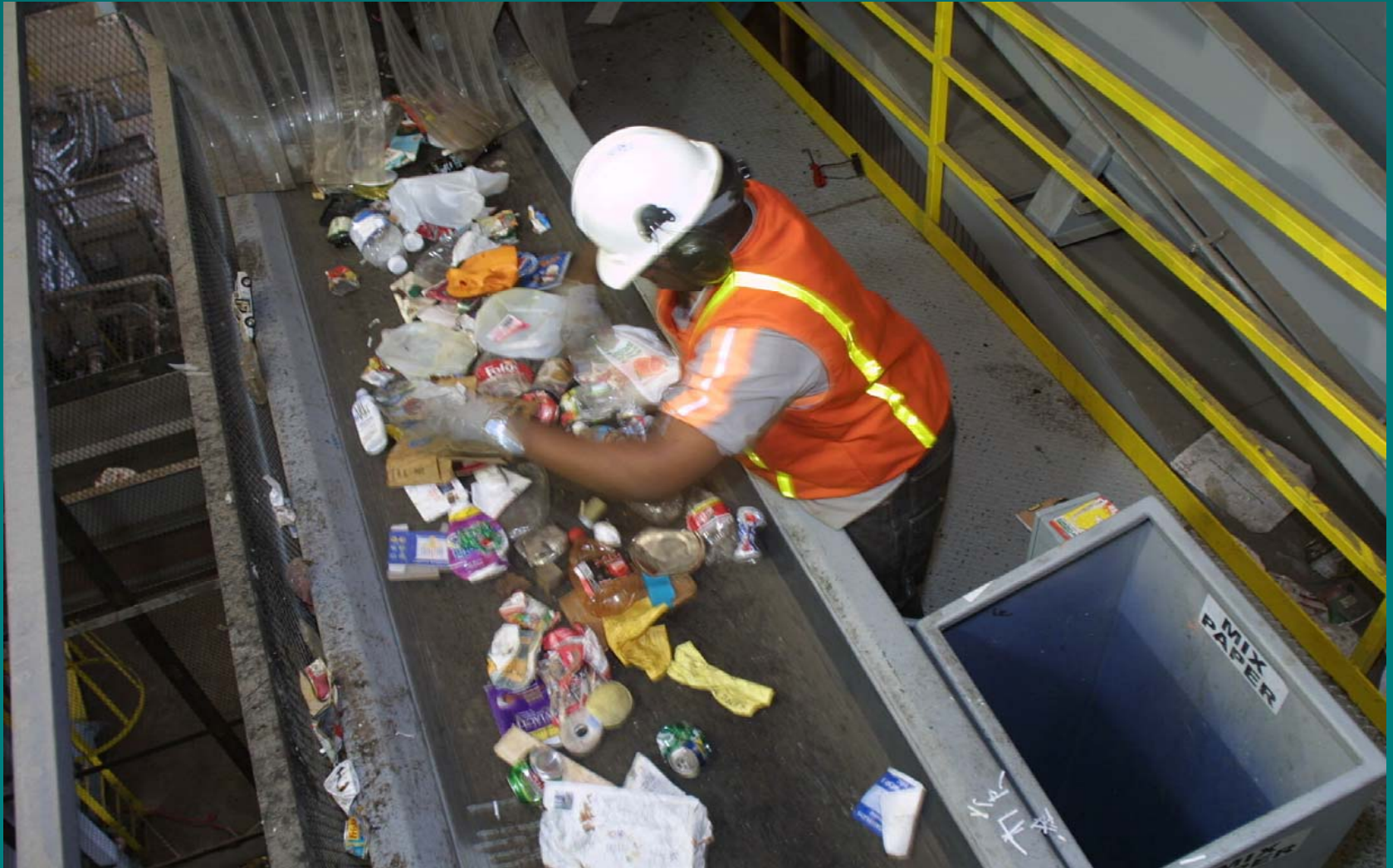


# Screened Mixed Paper Fibers





# Sorting Small Fiber From Container Unders





# Mixed Commercial Line, With Less Containers, May Sort White Paper



# Plastic & Glass Hand Sorted





# Ferrous Sorted by Magnets & Aluminum by Eddy Currents





# Paper & Metals to Asian Markets, Glass Regional & Plastic Regional/Asian Markets

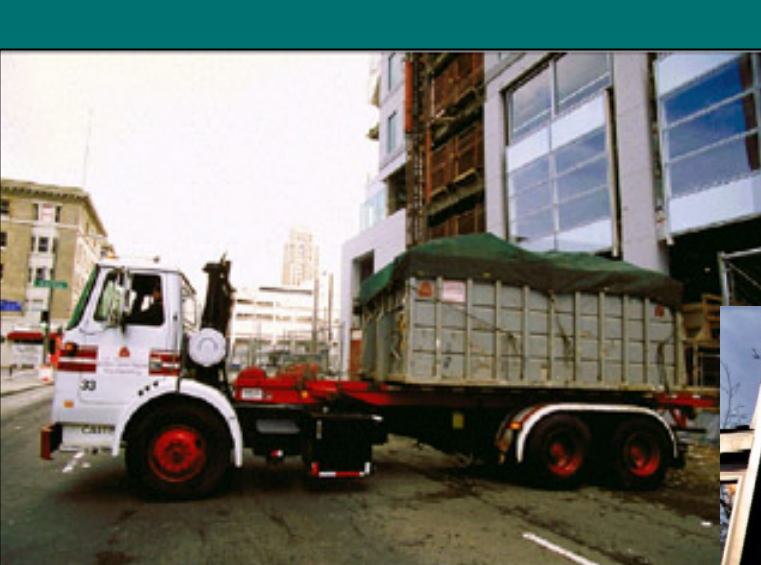


# Compostables Collected Using Single Chamber Compactors Weekly For Residents





# Commercial Recycling & Composting Collection With Many Bin Types Daily



# Multi-lingual And Photo Image Poster Used for Training and Bin Signage



## Composting Collection

### All Food

fruits, vegetables, meat, poultry, seafood, shellfish, bones, rice, beans, pasta, bread, cheese and eggshells.

### 全部食物

水果、蔬菜、肉類、家禽、海鮮、骨頭、米飯、豆類、麵製品、麵包和乳酪  
有殼海產、蛋殼

### 被食品弄髒的紙類

浸濕的紙皮盒、餐巾、紙巾、紙碟、咖啡過濾紙、茶袋、木屑和紙木屑、牛奶紙盒

### 植物

花卉剪枝、樹枝、樹葉、草、雜草和野草

### Food-soiled Paper

waxed cardboard, napkins, paper towels, paper plates, paper milk cartons, tea bags, coffee grounds/filters, wooden crates, sawdust.

### Plants

floral trimmings, tree trimmings, leaves, grass, brush, weeds.

### Toda Comida

frutas, verduras, carnes, mariscos, crustáceos, huesos, arroz, frijoles, pastas, pan, quesos, cáscaras de huevo.

### Papel Manchado por Comida

cartón encerado, servilletas, platos y toallas de papel, filtros y posos de café, recipientes de cartón para leche, bolsas de té, cajas de madera, aserrín.

### Plantas

recortes de flores y árboles, hojas, césped cortado, malezas, hierbas.

### No!

plastic bags/wrap/straws, styrofoam, bottles and cans, aluminum foil, liquids, hazardous waste

### 不收!

塑膠袋/保鮮膠紙/飲筒  
泡沫膠  
樽和罐  
鋁箔  
液體  
有害物品

### ¡No!

bolsas/envoladuras/pajitas de plástico, espuma de poliestireno, botellas y latas, papel de aluminio, líquidos, desechos peligrosos



sfenvironment.org  
greenprint.sfdem.net



People's Garden • Sustainable  
Sunset Community Center  
Your Local Recycling Company  
100 Percent Employee Owned  
www.sunsetscavenger.com

### YOUR COLLECTION DAY IS:

你的收集日期是:

EL DÍA DE RECOLECCIÓN ES

Containers must be on the curb, at a loading dock or otherwise accessible on collection day.  
收集箱必須放在路旁、可裝卸範圍、或放在可以方便收集的位置

Los recipientes deben colocarse en el bordillo o en una zona de carga o en un lugar accesible.

### Questions?

330-1300



# Get Management Support with Rate Incentives, On-site Technical & Material Assistance & Multilingual Training



# Green Bin Set-up For Work Station Sorting





# Toters, Slim Jims or Shoots to Separate Bottles & Cans from Compostables

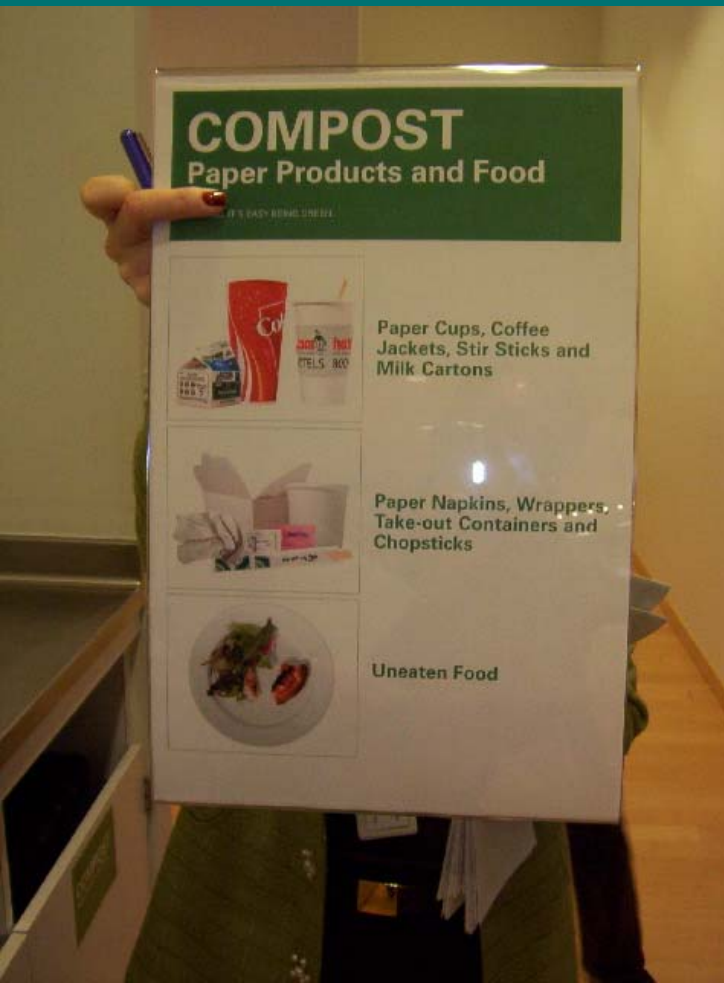


# Combining, Lining, Tipping & Cleaning Sorting Containers





# Building Cafeteria Composting



# University Food Court Customized Sorting Station





# Signage Customized for Food Ware Used

## LANDFILL



**Food packaging**  
Chip bags, Food Wrappers, Cellophane, Used Aluminum Foil, Toga Coffee Caps and Soup Lids (unless labeled #2, #4, #5)

**Other non-recyclable, non-compostable:**  
Aseptic Juice Boxes, Ceramic Dishes or Cups, Coat Hangers, Light Bulbs - (Not Fluorescent), Mirrors, Pots, Plastic Bags, Plastic Straws, Plastic Bubble Wrap, Styrofoam Packaging, Windows Glass

### DO NOT DUMP



- Aerosols
- Batteries
- Chemicals
- Electronic Devices (TVs, computers, phones, wires, monitors, microwave ovens)
- Fluorescent Light Bulbs
- Liquids
- Needles/Syringes
- Paint
- Motor Oil
- Dirt, Rock or Concrete

for more information, please visit <http://www.sunnycarenger.com>

## COMPOSTABLES



**All Food**  
Fruit, vegetables, meat, poultry, seafood, shellfish, bones, rice, beans, pasta, bread, cheese, and eggshells

**Our Food Containers**  
Unlike traditional plasticware, our food containers, take-out boxes, cups, plates, and cutlery are made from renewable, tree-free resources that are sustainable, compostable and biodegradable.

**Food-soiled Papers**  
Sugar packets, napkins, paper towels, paper to-go products, paper milk cartons, waxed cardboard

**Other Compostables**  
Chopsticks, tea bags, coffee grounds and filters, wooden stir sticks, unvarnished, wooden crates, plants

for more information, please visit <http://www.sunnycarenger.com>

## RECYCLABLES



**Glass**  
• Bottles & jars  
• Olive oil & vinegar bottles  
• Wine bottles (no cork)

**Metal**  
• Aluminum, steel, tin, bimetal (canned) cans  
• Aluminum foil (kitchen)

**Plastic**  
• Bottles marked #1 - #7  
• Tubs and lids marked #2, #4, #5

**Paper (Clean)**  
• Boxes - unvarnished, fluted, cardboard, cereal or shoe boxes  
• Paper - any color, napkins & paper cups ok  
• Gift wrap, greeting cards  
• Junk mail, envelopes  
• Newspaper, catalogs, magazines, telephone books  
• Fax paper, store receipts  
• Manila file folders  
• Paperback books  
• Post-it adhesive notes  
• Paper bags

### NOT RECYCLABLE



- Ceramic dishes or cups
- Coat Hangers
- Juice Boxes
- Light bulbs
- Liquids
- Pyrex Glassware
- Mirrors
- Plastic bags
- Styrofoam
- Waxed Cardboard
- Window Glass

for more information, please visit <http://www.sunnycarenger.com>

# Working Creativity with Space Constraints



MAR 24 2004



# Options for Cleaning Containers



# Compostable Bags & Food Service Ware to Reduce Cleaning and Contamination





# Using Bag Liners Can Help Participation – Transparent and Compostable – Cost, Performance & Identification Issues



# Over 60 Schools Have Food Composting & Recycling Programs.





# Monitoring Contamination, Give Feedback And Assistance To Ensure Quality Control



# Norcal's “Jepsen Prairie Organics” Regional Composting Facility, 300 TPD using 15 acres





# Nutrient Rich Compostable Food



# Receiving & Sorting Out Contaminants from Yard Trimmings and Food Scrap Compostables





# Grinding Feedstock for Composting, Switched from Diesel to Electric



# Feedstock Ram-fed Into 200 Foot Long HDPE Plastic Ag-Bags





# Bags Aerated For 30 Days With Timed Blowers And Perforated Pipes



# High Temperatures Meet Pathogen Kill (PFRP) Requirements





# Bags Opened and Material Turned In Open Windrows For 30 Days



# Compost Screened To 3/8 or 1/4 Inch





# Custom Blending For Specific Markets and Organic Certified



# Compost Used For Landscaping & Golf Courses





# Compost Used On Organic Farms And Vineyards To Build Healthy Soils



# Diverting Food and Other Compostables From Landfill Sustains Soils and Closes Organics & Nutrient Loop





# Adding Food Digestion-to-Biogas Before Composting



# SF Food Service Waste Reduction Ordinance Effective June 1, 2007

- Food vendors cannot use of polystyrene foam (EPS) for food prepared and served in San Francisco.
  - Styrene life cycle health impacts, non-compostable & non-recyclable, terrestrial & marine food web impacts
- Food vendors can only use disposable food ware that is acceptable as compostable or recyclable in SF unless city determines no suitable or affordable (no more than 15% more expensive) option exists.
- Over 4500 restaurants, cafes and take-out establishments targeted with outreach, including product showcase events and working with distributors.



# Food Ware Accepted as Compostable

- Paper or Plant Pulp/Fiber
  - Recycled Paper
  - Bagasse/Sugarcane
  - Poly coated paper allowed for now
- Compostable Plastics must meet ASTM D6400 and be labeled compostable, preferably with green print
  - PLA or PLA coated paper
  - PLA blends
  - Cereplast



# Using Compostable Food Service Can Divert Up to 90+%, Even at Public Events





# SF Plastic Bag Reduction Ordinance

- First targeted large grocery stores (54) that provide large majority of bags with large purchases, then pharmacy chains (e.g., Walgreens) were added. These stores provide an estimated up to 150,000,000 plastic bags.
- Grocery stores by November 20, 2007 and pharmacy chains by May 20, 2008 can provide only check-out bags that are:
  - Reusable cloth/fabric or durable plastic of 2.25 ml,
  - Compostable plastic (BPI certified to meet ASTM D6400), &/or
  - Recyclable paper (40% post-consumer recycled content)

# Metal, Sheetrock, Wood, Concrete & Inert Fines Recovered From C&D at 600 tpd MRF





# Bulky, Electronic and Toxic Waste Collection Programs



# Lessons & Recommendations

- Adopt high waste diversion goals and Zero Waste policies
- Develop public/private partnerships with mutual goals
- Support siting, permitting and financing infrastructure
- Incentivize service providers and generators to increase diversion (PAYT critical)
- Establish comprehensive residential & commercial “single stream” recycling and food & other organics composting
- Provide color coded and easy to use (at least as convenient) collection programs
- Conduct extensive outreach and on-site assistance
- Mandate participation with penalties or higher rates
- Improve technologies to reduce env impacts and improve/diversify products, such as biodiesel or digestion
- Pursue Extended Producer Responsibility policies



# SF Strategies to Implement Zero Waste

- Expand source reduction, reuse, recycling and composting and other programs and participation
- Increase service provider and generator incentives
- Improve material processing technologies (e.g., digestion) to reduce environmental impacts and diversify markets
- Conducting extensive ongoing outreach and education
- Require producer and consumer responsibility through policies and legislation
- Require products be reusable, recyclable or compostable
- Push to eliminate tax and other subsidies that give preference to virgin materials and landfilling waste

# Thank You

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